

## CONTRIBUTION OF GROSS JOB FLOWS TO THE DYNAMICS OF CORPORATE RESTRUCTURING IN CROATIA

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Article\*\*  
UDC 331(497.5)  
JEL F01

### *Abstract*

*While lack of corporate restructuring is often viewed as one of the major obstacles to economic growth in Croatia, the scant empirical evidence available does not corroborate this view. The paper evaluates more recent evidence based on gross job flows in order to shed more light on the Croatian experience with corporate restructuring. The findings support the view that a slowdown in corporate restructuring has been taking place during this decade. Gross job flows show that recent employment growth resulted from smaller job destruction, with job creation increasing only slightly. In addition, jobs are now being churned among enterprises that are more similar to each other than was the case in the 1990s. Therefore, all the measures used confirm that less corporate restructuring has been taking place during the last decade in comparison to 1990s, regardless of the still strong state presence in the economy.*

*Keywords: enterprise restructuring, labor reallocation, gross job flows, Croatia*

### **1 Introduction**

The transition process entails reallocation of labor and other economic resources on a massive scale. As many products, business practices and jobs become obsolete, new businesses arise in response to the needs of the market. It would probably not be an oversta-

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\* I would like to thank Jan Rutkowski in particular for helpful comments on an earlier draft of this paper as well as three anonymous referees. Also, financial support from the World Bank for this study is acknowledged. This paper is forthcoming in the World Bank's report "Croatia's EU Convergence: Reaching and Sustaining Higher Rates of Economic Growth", Country Economic Memorandum. The views expressed in this paper are those of the author alone and any of the remaining errors is the author's responsibility.

\*\* *Received:* June 1, 2008

*Accepted:* November 8, 2008

tement to claim that the success of the transition process critically depends on the extent and nature of this restructuring and reallocation of resources from old to new enterprises and jobs. The evidence on the dynamics of this process in Croatia is mixed. On the one hand, there are studies supporting the view that the dynamics of corporate restructuring in Croatia has been in line with the same process in advanced transition countries (see Vujčić, 1997; Vehovec and Domadenik, 2003). However, there are some studies (see in particular Moore and Vamvakidis, 2007) that interpret some aggregate indicators as a signal of subdued restructuring. This paper has one goal – to shed more light on the dynamics of the process of corporate restructuring in Croatia and especially on more recent experience, thus providing additional evidence on the subject and a better understanding of the debate.

In order to achieve this goal, the dynamics of gross job flows will be examined. This approach bears some resemblances to those previously utilized by Vujčić (1997) and Vehovec and Domadenik (2003) to study corporate restructuring in Croatia. Most notably, dynamics of labor market adjustment will be put at the forefront of the analysis. Also, the paper will observe defensive restructuring, or changes in employment, rather than trying to take account of strategic restructuring. However, rather than looking at the convergence of employment structures to the specific goal, the process of job reallocation itself will be directly observed. Also, in addition to the magnitude of job reallocation, characteristics of expanding and contracting firms will be examined in great detail, providing an additional contribution to previous studies. Detailed evidence on job flows will in particular indicate the possible effects of labor reallocation.

The following chapter discusses selected views on the dynamics of corporate restructuring in Croatia. While some earlier empirical evidence (see Vujčić, 1997; Vehovec and Domadenik, 2003) does not find corporate restructuring in Croatia to lag behind that in other transition countries, the view that lack of restructuring is a severe hindrance to economic growth is nevertheless present in the literature. The next chapter discusses job flows – the enterprise restructuring nexus. While job flows are traditionally in the focus of the literature observing the dynamics of labor market adjustment, several authors have recently tried to estimate the contribution of labor reallocation to productivity growth, thus bringing job flow data more closely to the interest of the corporate restructuring field of research. Finally, before the conclusion, the main part of the paper presents evidence on the dynamics and composition of gross job flows in Croatia.

## **2 Role of and Empirical Evidence on Corporate Restructuring in Croatia**

Even though there is a lot of discussion on the extent and dynamics of corporate restructuring in Croatia, no consensus has been reached despite some favorable early empirical evidence (see Vujčić, 1997; Vehovec and Domadenik, 2003). Their findings have not prevented a debate from taking place, with quite a few authors blaming at least some of the Croatian major economic problems on lack of corporate restructuring. As a recent example, Moore and Vamvakidis (2007) reiterate relative rankings of detailed EBRD transition indicators, and sub-index of corporate restructuring in particular, in order to substantiate their claim that enterprise restructuring is an area where Croatia is especially behind

other Central and Eastern European countries. They see restructuring of the Croatian economy as severely delayed, putting a major drag on economic growth, although this lack of restructuring is considered to be a symptom of a number of underlying weaknesses rather than a root cause of mediocre economic performance. EBRD transition sub-indices provide a useful general overview in different areas of an economy, including corporate restructuring. However, detailed data on corporate restructuring, similar to those presented in this paper (or those presented by Vujčić, 1997; Vehovec and Domadenik, 2003), complement and provide some value added to EBRD aggregate scores and rankings for understanding complex issues such as corporate restructuring

Unlike the disturbing scores on EBRD transition indicators, there are some pieces of empirical evidence supporting the view that the Croatian economy embarked on the restructuring process from a rather favorable position and moved in the right direction at a respectable pace, albeit these data cover a somewhat earlier period. Vujčić (1997) notes that Croatia had an initial advantage in the restructuring process since it had the highest share of employees in services of all the transition countries at the beginning of the transition process. Moreover, most of the change in the employment structure in Croatia during the transition was in the “right” direction, if the employment structure of the EU countries is considered a target for the restructuring process. However, although Croatia was found to be quicker and more efficient in the restructuring process during the observed period (until 1996), Vujčić (1997) also notes that the restructuring process mostly took place through job destruction, while there were very few expanding activities until the recent period.

Vehovec and Domadenik (2003) also confirm that the restructuring process in Croatia did not differ much from that in other advanced transition countries – at least if defensive restructuring is observed, as opposed to strategic restructuring where there is less evidence, but probably more reasons for concern. Vehovec and Domadenik (2003) report that labor demand elasticities in Croatia with respect to wage and corporate revenues during the 1995-2000 period did not diverge from those values observed in other Central and Eastern European countries. As the Croatian enterprises sampled significantly reduced employment amid a major fall in revenues accompanied with increasing wages, it is logical to conclude that the process of restructuring was not notably impeded.

Aligning evidence on early and efficient restructuring with the poor EBRD transition score for corporate restructuring seems hard. However, as available empirical evidence covers the period until 2000 and relies to a great extent on events from the mid-1990s, finding a slowdown in the restructuring process during this decade could bring the evidence closer to the general perception.

### **3 Gross Job Flows and the Restructuring Process**

Many jobs are continuously created and destroyed in most economies even if there is little change in the aggregate employment. Firms constantly expand or contract, subtracting jobs from the economy and simultaneously adding new jobs, which are often different. While economic analysis frequently concentrates on the resulting net changes in aggregate employment and employment structure Vujčić (1997), is an example of this approach),

there is also a considerable strand of literature looking at changes in employment across individual enterprises, or so-called “gross job flows”.

Gross job flows are most commonly observed in order to assess the dynamics of labor market adjustment. Davis and Haltiwanger (1999) provide a comprehensive overview of this literature. Faggio and Konings (1998), Haltiwanger and Vodopivec (2000, 2003) and Jurajda and Terrell (2001) are examples of studies looking at the extent of job flows in order to assess the magnitude of labor market dynamics in transition countries and characteristics of enterprises generating new jobs. Rutkowski (2003) used estimates of job flows in order to corroborate his view on the substantial rigidity of the Croatian labor market, making it the first application of the job flow approach to the Croatian data.

Since gross job flows are unique data sources providing rich information on the characteristics of new as well as of disappearing jobs, their use has not been limited to labor market studies. Deng et al. (2007) associate processes of resource reallocation and enterprise restructuring with gross job flows as they attempt to measure the impact of job reallocation on the aggregate productivity growth in China. Their evidence confirms that a large fraction of the aggregate productivity growth is accounted for by reallocation of inputs and outputs from less productive to more productive firms (Deng et al., 2007). Therefore, a high level of gross job flows is found to be the most important precondition for dynamic allocative efficiency, at least in developing countries, supporting the view of the importance of corporate restructuring. In opposition to this finding, Scarpetta et al. (2002) report that shifts in market shares of operating firms influence productivity only modestly, while entry and exit of firms can account for between 20 percent and 40 percent of total productivity growth in ten observed OECD economies. This seeming contradiction can probably arise from the structure of the observed economy. In a low-productivity developing economy with considerable presence of the state sector and non-restructured firms, such as Chinese, there is certainly much more scope for increasing efficiency by reallocating labor than in an advanced market economy with competitive private sector and limited state presence in the economy.

In this paper, strong remaining state presence is implicitly considered as indirect evidence that in Croatia there is still plenty of room for productivity enhancing job reallocations. The focus will therefore be placed on the nature of expanding and contracting companies only. A more detailed account of the exact contributions of job flows to productivity will therefore be left for future research.

## **4 Gross Job Flows in Croatia**

### ***4.1 Data description***

The data on job flows are extracted from the FINA (Financial Agency) database of enterprises' annual reports. This database includes over 100 thousand enterprises that reported their financial statement in at least two consecutive surveys during the 1993-2006 period. Since submission of an annual report is a legal obligation for every enterprise operating in Croatia, FINA believes that the reporting enterprises account for the vast major-

rity of operating enterprises with only a negligible portion of enterprises neglecting this obligation. The population for the calculation of job flows indicators in each single year includes between about 30 and 65 thousand enterprises reporting in subsequent surveys, depending on the each year the survey was performed.

In order to provide consistency of data and clean most of the errors and omissions from the database, a visual inspection of observations exhibiting the largest employment fluctuations during any of the years under study was performed. Elimination of unusually large employment swings among those enterprises on average reduced total job turnover rate by about 2 percentage points (about 1 percentage point for job creation and job destruction rate each) or by about 13 percent of the corrected job flows. Also, as mentioned above, all enterprises failing to report for two consecutive years needed for the calculation of job flows were left out of the population since it was not possible to know whether a newly established enterprise was starting to report, or this enterprise simply previously failed to report. Both of these procedures induce a possibility of a downward bias in the estimated job flows, although some of the remaining errors in the database can work in the opposite direction. Effects of those procedures and of an alternative data cleaning method are discussed in more detail in Appendix I.

#### **4.2 Job Creation and Job Destruction**

There is a number of different job flow measures that form a coherent framework for the analysis of job flows. These concepts will be gradually introduced throughout the paper as a need arises. Since definitions used differ amongst authors, all definitions followed in this paper are adapted from a seminal survey paper by Davis and Haltiwanger (1999). According to those authors, three basic job flows are defined in the following way:

*Job creation* equals employment gains summed over all business units that expanded during the year under observation.

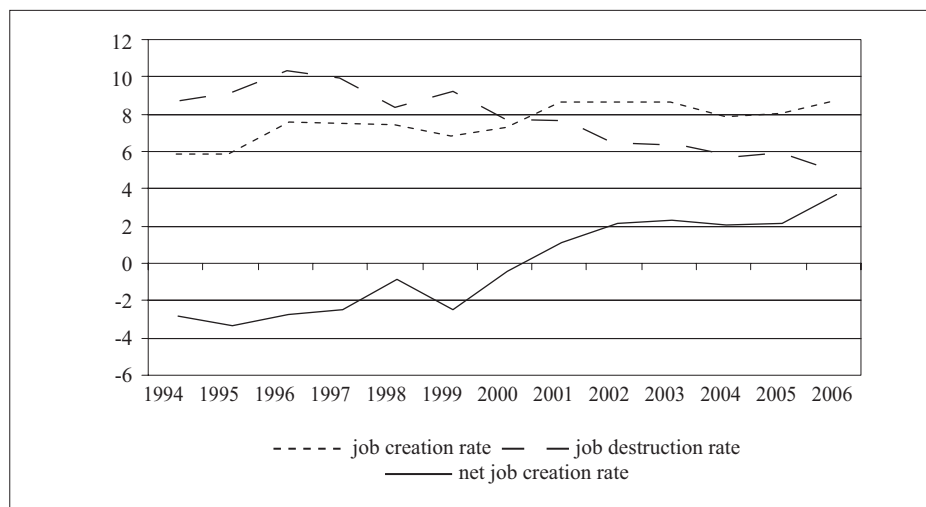
*Job destruction* is equal to employment losses summed over all business units that contracted during the year under observation.

*Net employment change* equals the difference between job creation and job destruction.

Job flows are usually expressed as a proportion of an average employment at the beginning and at the end of the period under observation. Davis and Haltiwanger (1999) further note that capturing job flows taking place within firms or establishments would be highly desirable, but that very few studies actually manage to do this. The prevalent use of firm-level data makes it virtually impossible directly to measure job flows between different establishments belonging to the same firm. In principle, capturing job flows occurring in firms opening and closing during the period under observation would also be highly desirable, but since it is hard to distinguish between these events and non-reporting, such flows are usually omitted, as in this study. In addition to the previous caveat, it is possible that omitting both within-firm flows and flows taking place in starting/closing firms have biased the calculated job flows downwards to some extent.

Figure 1 presents job creation and job destruction rates in Croatia during the 1994-2006 period. It shows a falling job destruction rate and an increasing job creation rate, which finally caught up with job destruction in 2001 and subsequently got ahead of it. In line with the dynamics of these two flows, net job creation turned to positive in 2001 and has considerably increased since then. Such dynamics of net job flows was aligned to a great extent with the observed employment change.

Figure 1 Job creation, job destruction and net job creation rates in Croatia (1994-2006) (in %)



Source: FINA; own calculations

Presented job creation and job destruction rates, though still fairly modest in international comparison, are on average about twice as high as those reported by Rutkowski (2003) in his calculations of gross job flows in Croatia for 2001 (his job creation rate was 3.5 percent, while job destruction was 4.9%, as compared to 8.7 and 7.6 percent, respectively, in this paper). Such a large difference between those two sets of job flow indicators arises predominantly because Rutkowski (2003) used a sampling procedure, while this study encompasses the whole population of reporting enterprises<sup>1</sup>. As job creation and destruction rates exhibited by different enterprises differ wildly, any bias towards large enterprises would severely reduce job flow measure, as indeed appears to be the case with the sample Rutkowski (2003) used, not only between selected groups of enterprises, but

<sup>1</sup> Rutkowski drew a random sample of 12 thousands firms out of the full population, representing about a quarter of population. The sample was constructed to ensure representation of firms by ownership and region. However, it seems that sample's enterprises differ from the population with respect to some of their properties. For instance, while enterprises with up to 50 employees account for less than 14 percent of total employment in Rutkowski's sample, they comprise about one third of total employment in the entire population of enterprises. Similarly, enterprises with more than 500 employees make up almost half of the total employment in the sample, while their employment share in the whole population of enterprises is approximately one third.

also within the groups. As detailed flows reported by Rutkowski (2003) are also below their values calculated using the same data-cleaning procedure on a whole population, this confirms that his sample was also biased within certain size classes. Difference in the data cleaning procedure used by Rutkowski (2003), which could have eliminated some of the job flows data in excess of those arising from errors, provide a second reason for possible divergence, but this was probably not the cause for major divergences (this method is discussed in more detail in Appendix I).

#### **4.3 Job turnover and excess job reallocation**

Job turnover and excess job reallocation summarize the overall extent of job flows. Their definitions, according to Davis and Haltiwanger (1999), are the following.

*Job turnover* equals the sum of the absolute value of all business units' employment gains and losses, representing the sum of job creation and job destruction.

*Excess job reallocation* is equal to the difference between job turnover and the absolute value of net employment change. It represents the part of job turnover that is above the amount required to accommodate net employment change.

While job turnover rate measures the full extent of jobs that were either created or destroyed, excess job reallocation rates accounts for only those jobs that "moved" from one firm to another, or jobs being churned between firms.

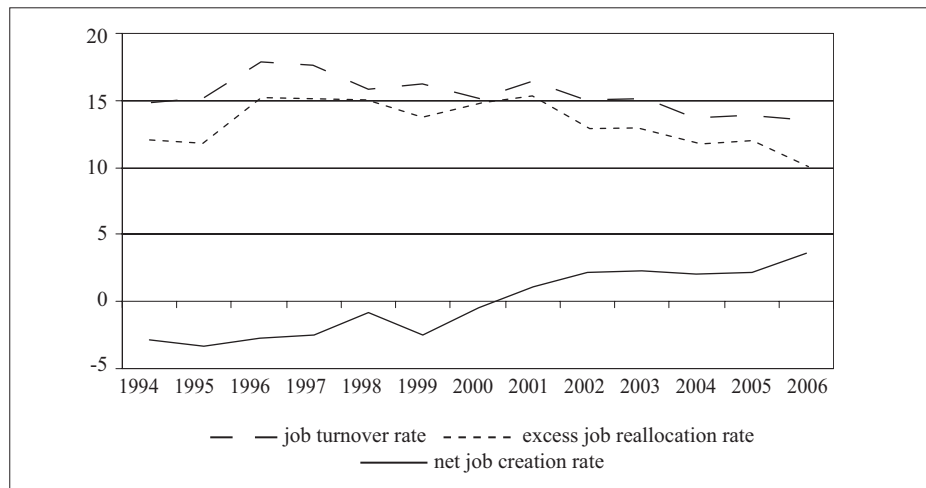
Job turnover rate in Croatia reached the maximum of almost 18% during mid-1990's, in the middle of the transformation process, and declined by about a quarter until 2006 (figure 2). Excess job reallocation rate maintained momentum until 2001 and then sharply declined by more than a third, indicating a fall in the number of reallocated jobs. Falling excess job reallocation rate shows that far fewer jobs are being churned and less restructuring is taking place now as compared to the previous decade. To supplement this quantitative evidence on the decrease in the extent of excess job reallocation, the quality of this restructuring will be more closely examined.

#### **4.4 Decomposition of excess job reallocation**

As described above, net job creation rates were fairly small and excess job reallocation remained an important flow until recently. Deeper insight into the forces driving excess job reallocation can be inferred from the detailed data on job flows and excess job reallocation, decomposed according to various firm characteristics, such as size, ownership, sector of economic activity and regional affiliation. In other words, decomposition of excess job reallocation provides information in a simple way on the main differences between contracting and expanding firms. Excess job reallocation can therefore be decomposed in two components: the portion of such flows arising within a certain group of enterprises (such as enterprises operating within a certain economic activity) and flows arising between groups of enterprises.

The first component ("within group" flows) is measured as the extent of excess job reallocation at the level of each group, such as individual economic activities, and then summed across all of the groups. The second component ("between group" flows) is mea-

Figure 2 Job turnover, excess job reallocation and net job creation rates in Croatia (1994-2006) (in %)



Source: FINA; own calculations.

sured by summing across groups the deviation of the absolute value of the growth rate for that group and then subtracting from the absolute value of the growth rate for all groups (Faggio and Konings, 1998). Figure 3, presenting the decomposition of “within group” flows and “between group” flows, shows that difference in ownership status was the most important factor driving reallocation of jobs during the transition process in Croatia.

While in the early 1990’s almost one half of excess job flows took place between enterprises belonging to different ownership types (mostly between *de novo*<sup>2</sup> private enterprises and all other enterprises, as will be shown later), recently it was the case with less than a tenth of excess job flows. This is especially significant given the substantially reduced size of the excess job reallocation itself, which decreased by a third since the beginning of the decade. Indicators of job flows arising between different firms provide direct evidence on the restructuring slowdown as job flows taking place in this decade arise between more similar enterprises, or more jobs churn amongst firms belonging to the same groups.

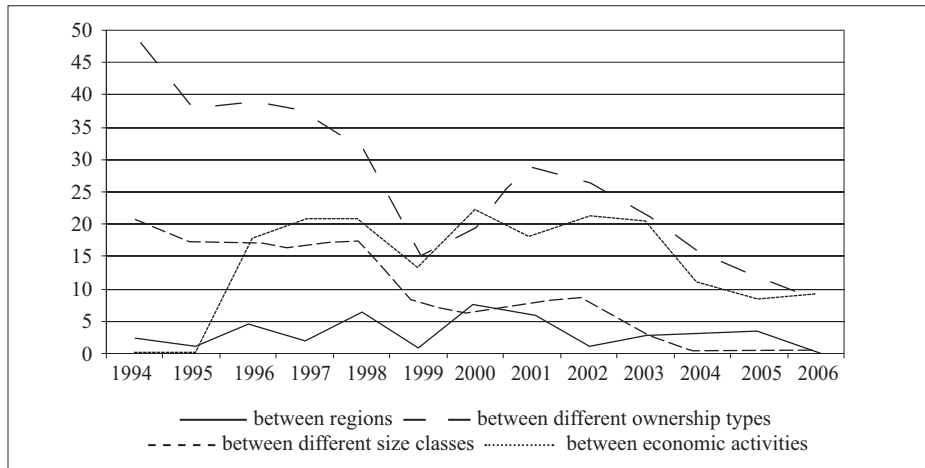
Other enterprise attributes do not appear to be important for explaining the dynamics of job reallocation. Most excess job reallocation occurred within economic activities (defined at NACE-2 level), with less than 20 percent of total excess reallocation going on between different economic activities for most of the observed period and falling to less than 10 percent recently. Faggio and Konings (1998) report similar results for Romania, while inter-sectoral reallocation accounted for only 10 percent of total excess job reallocation in Bulgaria and as much as 50 percent of excess reallocation in Estonia.<sup>3</sup> Although

<sup>2</sup> *De novo* enterprises indicate newly founded enterprises that have been privately owned since establishment.

<sup>3</sup> Faggio and Konings (1998) observe the 1993-1996 period in Bulgaria and Estonia, while for Romania only data for 1995 and 1996 were included in the study.



Figure 3 Decomposition of excess job reallocation in Croatia according to different criteria, in % (1994-2006)



Source: FINA; own calculations.

gh regional imbalances in Croatia are sometimes alleged to be particularly large, according to the regional decomposition of excess job reallocation, this kind of mobility appears low, with less than 3 percent of average annual job reallocation occurring between the counties and finally ceasing to take place in 2006. However, this indicator has to be looked at with caution since employment is registered by the enterprise headquarters and not by the actual location where the work took place, which may bias the indicator either way. Also, even a modest migration of jobs between the regions can build-up significant imbalances over time, if their direction is persistent. Finally, job creation rates in small enterprises during early years of the transition were dramatic, but as the share of firms with less than 20 employees approached a quarter of total employment by the end of the 1990s, their growth stalled and the reallocation of jobs between firms of different sizes ceased to be important. The thresholds for firm size classes were chosen somewhat arbitrarily, but the choice of six relevant groups<sup>4</sup> would probably capture any more significant movements of jobs between enterprises of different sizes.

#### 4.5 Decomposition of job creation and job destruction

While decomposition of excess job reallocation provides only information on general features of the firms that drive the process of job flows (e.g. type of ownership), it is possible to look more closely at individual characteristics of firms that create new jobs and those that destroy jobs and to compare their behavior (e.g. the behavior of newly established privately owned firms vs. state owned firms). Comparison of data on job creation

<sup>4</sup> Firm groups by size are defined in the following manner: (i) 1-10 employees, (ii) 11-20 employees, (iii) 21-50 employees, (iv) 51-200 employees, (v) 201-500 employees and (vi) 501 or more employees.

and job destruction decomposed by enterprise characteristics is the most straightforward way to perform such an exercise. Since it was previously found that firm ownership was the most important characteristic driving job reallocation, job creation and job destruction rates decomposed according to ownership are presented in tables 1 and 2.

Table 1 Job creation and job destruction rates, according to firm ownership, in %  
 (1994-2006)

<b>Job creation rate</b>	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
public utilities etc.	1.3	1.7	2.9	2.9	1.7	1.9	1.6	1.2	1.2	2.7	1.7	1.6	2.6
in privatization	3.3	1.3	2.5	4.0	3.5	5.0	3.0	3.5	2.5	4.0	3.4	4.0	5.3
privatization not started	3.0	1.7	4.0	3.6	5.7	3.7	1.8	3.1	3.5	3.2	1.8	1.6	1.2
de novo	31.4	23.5	23.8	20.0	17.8	14.9	14.3	16.7	15.8	14.8	13.0	13.0	13.4
privatized	2.8	2.3	2.8	2.4	2.7	2.6	4.1	4.3	4.2	4.2	3.3	3.9	4.0
cooperative	2.1	1.5	1.8	3.8	7.9	3.5	4.1	3.9	7.3	7.4	7.0	8.4	7.6
mixed - majority private	2.5	2.5	2.5	3.9	3.4	2.6	5.3	3.9	3.3	3.6	4.0	4.0	3.7
mixed - majority state	1.4	1.3	2.7	2.0	3.2	2.3	2.4	5.4	2.8	2.7	3.2	2.4	1.2
<i>total</i>	<i>5.9</i>	<i>5.9</i>	<i>7.5</i>	<i>7.5</i>	<i>7.4</i>	<i>6.8</i>	<i>7.3</i>	<i>8.7</i>	<i>8.6</i>	<i>8.7</i>	<i>7.9</i>	<i>8.1</i>	<i>8.6</i>
<b>Job destruction rate</b>	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
public utilities etc.	4.7	1.6	1.3	3.9	2.9	2.7	1.6	2.7	6.3	2.4	1.2	1.2	2.0
in privatization	9.5	10.3	12.8	9.5	12.1	10.7	21.4	6.7	7.0	6.3	4.5	11.5	3.9
privatization not started	6.4	13.5	5.3	8.3	7.6	8.7	7.3	3.6	3.6	1.2	2.3	1.8	3.7
de novo	9.2	11.5	12.2	9.7	10.3	12.1	10.4	8.4	7.0	7.0	7.1	7.5	6.0
privatized	9.8	10.1	9.8	10.8	8.8	9.9	8.6	8.0	5.4	7.5	6.2	6.5	4.8
cooperative	9.5	8.8	15.4	13.0	15.9	12.7	13.0	10.9	9.6	7.1	7.2	7.1	7.0
mixed - majority private	9.2	8.7	14.0	10.1	8.1	9.1	6.0	9.6	5.2	7.6	5.7	5.6	4.3
mixed - majority state	10.4	12.4	13.6	16.6	9.6	8.0	6.6	10.3	8.4	7.3	7.7	3.8	3.7
<i>total</i>	<i>8.8</i>	<i>9.2</i>	<i>10.2</i>	<i>9.9</i>	<i>8.3</i>	<i>9.3</i>	<i>7.7</i>	<i>7.6</i>	<i>6.4</i>	<i>6.3</i>	<i>5.8</i>	<i>5.9</i>	<i>5.0</i>

Source: FINA; own calculations.

Decomposition of job creation and job destruction raises a number of important points. First of all, there is a stark difference between contributions to the overall job creation rates of *de novo* private enterprises and all other enterprises, including mixed ownership with majority private ownership as well as fully privatized enterprises. The fact that *de novo* private enterprises account for the majority of new jobs is not surprising, although the sheer extent of the difference from other privately owned enterprises is startling as job creation rates in the former exceeded rates in the latter by a high multiple (on average by almost 5 times). Privately owned enterprises over the observed period contribu-

Table 2 Structure of contributions of job creation and job destruction in each ownership category to overall job creation and destruction, in % (1994-2006)

<b>Job creation rate</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
public utilities etc.	3.7	5.1	6.7	6.9	4.0	4.0	3.7	2.1	2.1	4.8	3.2	3.0	3.3
in privatization	4.7	0.9	1.0	1.4	1.0	1.2	0.6	0.6	0.4	0.5	0.5	0.4	0.4
privatization not started	1.6	0.7	1.0	0.7	1.2	1.0	0.4	1.2	0.6	0.8	0.5	0.4	0.3
de novo	68.6	73.6	72.0	72.0	74.0	76.4	70.8	76.0	80.3	78.7	81.1	81.9	83.7
privatized	9.7	8.3	7.6	6.2	6.8	7.2	10.3	8.6	8.2	7.4	5.8	6.4	5.9
cooperative	0.6	0.2	0.2	0.3	0.6	0.3	0.3	0.2	0.4	0.3	0.3	0.4	0.3
mixed - majority private	6.1	6.9	5.3	8.7	7.1	5.9	10.2	6.8	5.8	5.5	6.4	6.2	5.0
mixed - majority state	5.0	4.3	6.3	3.8	5.3	4.0	3.7	4.5	2.2	1.8	2.1	1.4	1.0
total - state ownership	15.0	11.0	15.0	12.7	11.5	10.2	8.4	8.4	5.3	8.0	6.3	5.2	5.1
total - private ownership	85.0	89.0	85.0	87.3	88.5	89.8	91.6	91.6	94.7	92.0	93.7	94.8	94.9
<i>total</i>	<i>5.9</i>	<i>5.9</i>	<i>7.5</i>	<i>7.5</i>	<i>7.4</i>	<i>6.8</i>	<i>7.3</i>	<i>8.7</i>	<i>8.6</i>	<i>8.7</i>	<i>7.9</i>	<i>8.1</i>	<i>8.6</i>
<b>Job destruction rate</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
public utilities etc.	9.1	3.1	2.3	6.9	6.3	4.2	3.7	5.4	14.5	5.8	3.1	2.9	4.5
in privatization	9.1	4.6	3.6	2.6	3.2	1.9	4.4	1.2	1.5	1.2	0.8	1.6	0.6
privatization not started	2.3	3.6	1.0	1.1	1.5	1.7	1.4	1.6	0.8	0.4	0.8	0.7	1.7
de novo	13.6	22.9	27.2	26.4	38.4	45.7	49.1	43.7	47.5	51.2	60.1	65.0	65.2
privatized	23.3	23.0	19.9	21.1	20.2	20.3	20.2	18.5	14.0	18.1	15.2	14.6	12.3
cooperative	1.8	0.9	1.0	0.8	1.1	0.7	0.8	0.6	0.6	0.5	0.4	0.4	0.5
mixed - majority private	15.1	15.2	21.9	17.2	15.3	15.4	10.9	19.1	12.3	16.2	12.6	11.9	10.0
mixed - majority state	25.6	26.7	23.2	23.8	14.0	10.1	9.5	9.9	8.7	6.7	6.9	3.0	5.2
total - state ownership	46.2	38.0	30.0	34.5	24.9	17.9	18.9	18.1	25.6	14.1	11.7	8.2	11.9
total - private ownership	53.8	62.0	70.0	65.5	75.1	82.1	81.1	81.9	74.4	85.9	88.3	91.8	88.1
<i>total</i>	<i>8.8</i>	<i>9.2</i>	<i>10.2</i>	<i>9.9</i>	<i>8.3</i>	<i>9.3</i>	<i>7.7</i>	<i>7.6</i>	<i>6.4</i>	<i>6.3</i>	<i>5.8</i>	<i>5.9</i>	<i>5.0</i>

Source: FINA; own calculations.

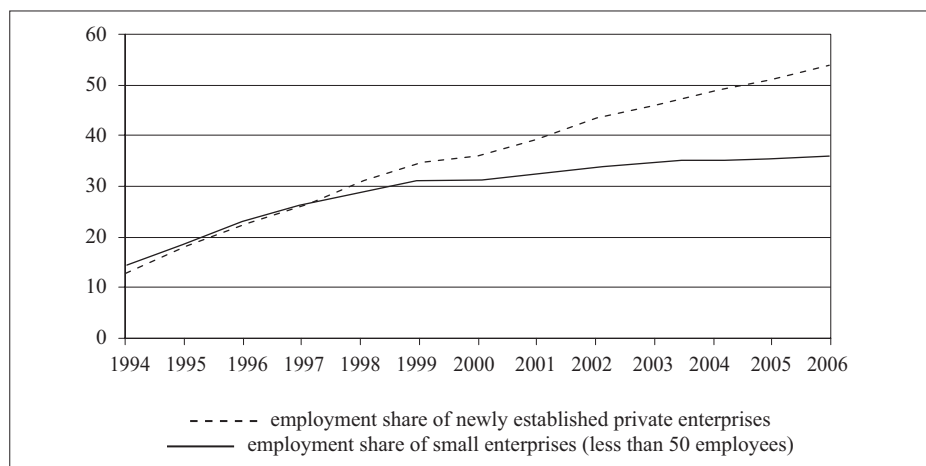
ted 9 out of every 10 new jobs, and close to 8 out of those 10 were added by newly established private enterprises. At the same time, job destruction rates did not differ that much between different types of enterprises, although it is even more amazing to find that job destruction rates in *de novo* private enterprises were somewhat higher than the average

for all others throughout the entire period. *De novo* firms accounted for about half of all jobs destroyed in 2000 and even increased their share since. Regardless of the magnitude of jobs destroyed in the newly established private firms, those firms were the only ones adding jobs on balance. They contributed almost 3 new jobs annually for every 10 previously existing jobs in those enterprises over the observed period, balancing net job destruction of all other firms. Such dynamics of job flows quadrupled the share of *de novo* firms in total employment during the period under observation as they exceeded half of total employment in reporting firms in 2006. The organic growth of these enterprises was the only source of net additions to the total employment.

One corollary of the presented figures is that privatized enterprises did not behave in a dramatically different way from state owned enterprises. While privatized enterprises on average added only 3.3 jobs for every 100 jobs existing in those enterprises, they destroyed 8.2 jobs for every 100 existing jobs during the observed period. Therefore, the job destruction rate in privatized enterprises was, on average, about two and a half times higher than the job creation rate in those enterprises. If privatization had any benefits for those enterprises, they would have to be observed in other indicators, such as increased productivity, and not in the magnitude of new jobs added.

Attrition of jobs in the sector of state owned enterprises was slow during the whole observed period, although the process kept the momentum until just before the end of the observed period. The decline of total employment was spread over a long period of time due to slow employment adjustment in the state owned and privatized enterprises and the long time needed for the new private sector to create jobs.

Figure 4 Shares of *de novo* and small enterprises in total employment, in % (1994-2006)



Source: FINA; own calculations.

Newly established enterprises that generated employment were mostly small. Enterprises with less than 50 employees persistently added new jobs, while those with more than 50 employees until recently continued to shed labor. However, it is the decline in the number of jobs destroyed in large enterprises that recently tipped the balance in favor of net job creation. Although employment share of large enterprises considerably dropped from the initial nine-tenths, those still account for about two-thirds within the reporting enterprises and their share appears to have stabilized as they ceased to shed jobs.

Dynamic enterprises tend to be located in Zagreb and in the nearby region, such as the Zagreb County, while in other regions job creation caught up with job destruction much later in the observed period. With respect to breakdown according to economic activities, more dynamic enterprises tended to operate in trade and construction.

Table 3 Net job creation rates by counties, in % (1994-2006)<sup>a</sup>

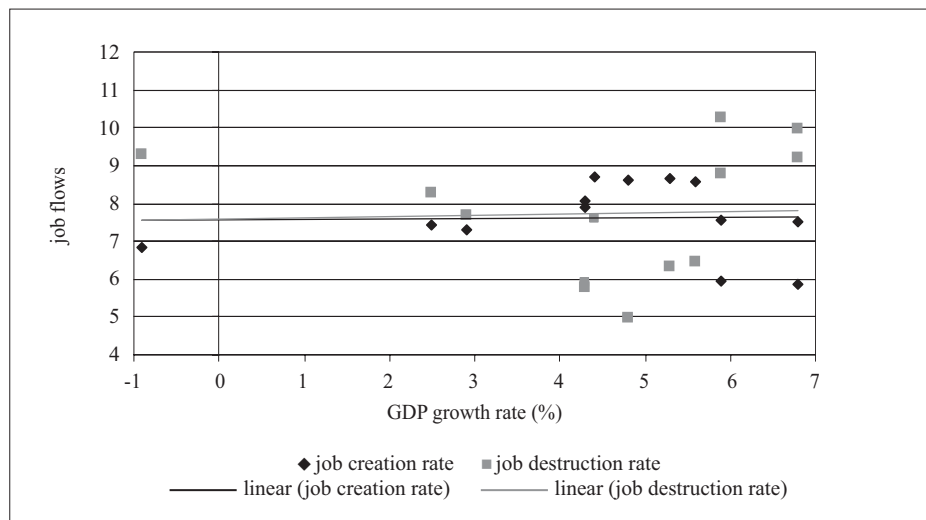
County	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Istarska	-6.7	-4.6	-1.9	-2.1	0.7	-1.2	0.2	1.2	0.8	0.2	0.4	0.6	2.2
Grad Zagreb	-2.2	-0.1	0.7	-1.5	-1.1	-1.8	0.2	0.6	1.1	2.6	3.3	3.6	3.9
Splitsko-dalmatinska	-2.4	-5.6	-4.3	-4.4	-2.1	-2.0	0.7	3.3	4.7	3.9	2.9	2.0	1.8
Primorsko-goranska	-3.4	-7.5	-5.7	-2.3	-2.7	-2.4	2.2	3.2	4.1	2.0	1.1	0.5	3.2
Varaždinska	-6.7	-8.7	-3.6	-0.1	1.2	-2.5	1.4	1.6	4.1	3.5	0.5	2.6	5.2
Zagrebačka	-2.6	-1.9	0.7	0.1	-0.5	-0.8	-2.4	6.7	4.8	7.8	6.3	2.2	6.1
Vukovarsko-srijemska	0.7	-8.9	-4.2	3.1	7.3	-6.4	-0.1	4.3	3.2	5.6	3.3	3.4	3.3
Brodsko-posavska	-2.9	-1.6	-3.0	-1.6	0.9	-5.5	-5.6	-0.1	3.6	6.6	1.8	1.7	3.8
Dubrovačko-neretvanska	-4.7	-6.7	-6.3	-3.1	-2.9	-5.8	-3.6	-0.3	1.8	0.0	0.1	2.5	4.8
Bjelovarsko-bilogorska	-5.4	-4.5	-11.6	-6.7	2.1	-7.3	-1.2	-2.7	3.7	6.1	0.2	0.8	3.5
Osječko-baranjska	-4.1	-5.1	-13.7	-2.1	1.8	-2.4	-3.6	0.1	-0.1	0.9	0.1	0.9	4.6
Krapinsko-zagorska	-0.8	-4.1	-6.9	-4.9	-2.4	-1.7	-2.5	3.3	-0.6	0.8	1.0	0.4	3.3
Sisačko-moslavačka	-3.5	-4.4	-0.2	-14.6	-1.0	0.4	3.3	-9.2	-0.9	1.1	2.9	1.8	0.9
Zadarska	-5.2	-0.1	-2.2	-3.3	2.1	-2.9	3.8	-2.1	3.8	-0.2	1.1	3.3	5.6
Međimurska	1.7	-5.5	-7.2	2.1	0.8	-2.3	1.3	5.7	2.4	-1.4	2.5	1.2	2.8
Koprivničko-križevačka	0.0	-13.9	-1.3	-5.7	-4.0	-0.5	-3.3	-2.8	4.0	1.0	-1.5	2.7	2.7
Požeško-slavonska	0.3	-6.2	1.2	-2.7	-1.1	-7.5	-1.1	1.3	3.6	0.2	-1.9	1.6	5.9
Šibensko-kninska	-3.2	1.3	-3.2	-5.6	-3.7	-3.4	0.3	4.9	0.3	-5.3	-6.8	2.8	3.3
Ličko-senjska	-5.6	-4.9	-4.9	-2.0	-6.7	-6.1	-0.3	0.8	-0.5	1.6	-0.4	-1.0	4.2
Virovitičko-podravaska	-8.8	-4.9	-2.7	-1.9	-3.2	-3.5	-12.7	-4.5	1.5	-3.9	0.5	-2.6	1.7
Karlovačka	1.1	-0.7	-6.4	-5.5	-3.7	-6.9	-4.2	2.1	4.5	0.9	-0.6	-8.6	3.3

<sup>a</sup> Counties are sorted according to the year when their net job creation rates turned positive.  
 Source: FINA; own calculations.

#### 4.6 Cyclical patterns of job creation and job destruction

A final issue of interest in the dynamics of job flows is their cyclical pattern. In a typical market economy, job creation rate is pro-cyclical, increasing with a boom and decreasing in a recession. At the same time, job destruction rate is counter-cyclical, but more strongly than the job creation rate, thus dominating it over the course of the economic cycle (Davis and Haltiwanger, 1999). Job flows in Croatia did not exhibit many cyclical properties (figure 8)<sup>5</sup>, regardless of the selected period<sup>6</sup>. This means that employment is quite resistant to short-term economic fluctuations and adjusts sluggishly.

Figure 5 Cyclical patterns of job creation and job destruction (1994-2006)



Source: FINA; own calculations

Lack of correlation between gross job flows and GDP proves the disconnection of the employment dynamics from GDP dynamics during the observed period. The adjustment of the employment level to the transition shock in Croatia was, therefore, a prolonged process that lasted until 2001, regardless of the non-negligible level of overall job turnover and significant excess job reallocation. Resistance of job destruction rates to fluctuations of economic activity are typical for heavily regulated labor markets where costs of employment adjustment outweigh any possible gains that arise from optimization of employment, although further research is needed to pinpoint all the possible causes for such patterns in Croatia.

<sup>5</sup> Since net job creation rate is simply the difference between job creation and job destruction rates, it also does not show any cyclical properties.

<sup>6</sup> This conclusion does not change much even if the more recent period, since the net job creation rate turned positive (2001-2006 period), is observed, since job destruction rates even for this period are not cyclically sensitive, while job creation rates display only weak cyclical sensitivity – an increase of about 3 percentage points in GDP growth rate is required in order to induce a 1 percentage point higher job creation rate.

#### 4.7 Patterns of job flows in Croatia

A number of stylized facts are usually assigned to a successful transition process from the standpoint of job flows (amongst others see Faggio and Konings, 1998; Haltiwanger and Vodopivec, 2000; 2003, Jurajda and Terrell, 2001; and Haltiwanger, Lehmann and Terrell, 2003):

- transition usually starts with a rapid increase in job destruction rates indicating effective transformation of the “old” socialist sector of the economy.
- initial increase in job destruction rates is quickly followed by higher job creation rates leading to a net employment growth.
- small privately owned enterprises generate most of the new jobs and become the main driving force of the reallocation process.
- major portion of job reallocation should be accounted for by jobs moving from one sector/region of the economy to the other indicating “deep” restructuring.

Although Croatia did broadly follow the patterns established in successful transition countries, there are several features of this process specific for Croatia. First of all, variation of job creation and job destruction rates over the observed period is small, given the magnitude of the underlying economic change. Davis and Haltiwanger (1999) emphasize weak comparability of job flow data across countries due to sample and firm differences, but still conclude that there is really not that much variation among countries as roughly one job in ten is created and destroyed every year in most advanced economies and transition countries. In contrast to normal patterns of job flows in developed market economies, where they mostly remain stable, except for cyclical fluctuation (for a detailed overview of job turnover dynamics in market economies see OECD, 1996; Davis and Haltiwanger, 1999), a transition economy typically experiences a dramatic increase in job flows during an early stage of the transformation process. Croatia, according to the calculated job creation and destruction rates, does not compare particularly well on this measure, even during an early transition when job flows were supposed to skyrocket. Further on, job destruction continued to exceed job creation for a long time, until 2001, despite a number of years with strong output growth. Moreover, in transition countries where some evidence is available (Faggio and Konings 1998; Haltiwanger and Vodopivec, 2000; 2003; Jurajda and Terrell, 2001; Haltiwanger, Lehmann and Terrell, 2003), job creation rates increased more and contributed more strongly to an increase in net job creation rates than was the case in Croatia, where decreasing job destruction accounted for most of the net employment growth, while job creation rates climbed to only a slightly higher level in 2001 and remained there since. Finally, inter-sectoral reallocation of jobs accounted for a modest and declining portion of job reallocation, with the new private sector accounting for much of the job destruction as well. All this is an indication that adjustment of the employment structures has been a subdued and prolonged process. These results also correspond to some extent with those of Faggio (2007), who includes Croatia amongst the countries where both job destruction in the old sector and job creation in the new sector lagged behind the early reformers.

## **5 Conclusion**

The main contribution of this paper is to provide recent evidence on the dynamics of corporate restructuring in Croatia. In order to accomplish this goal, the focus was placed on gross job flows, which is not much different from the previous Croatian literature in this field (Vehovec and Domadenik, 2003; Vujčić, 1997) and in line with some of the recent attempts to measure the extent of corporate restructuring in transforming economies (Deng et al., 2007). However, the findings differ somewhat from those in previous Croatian literature, mostly due to more recent coverage.

Over the past several years (2006 in particular), a strong increase in the aggregate net job creation rate is visible. However, this resulted from a decreasing job destruction rate, mostly of large, state owned enterprises, and not from a higher job creation rate. The aggregate magnitude of job flows that is not far from “normal” for most countries masks a high degree of segmentation in the Croatian labor market. While state owned enterprises as well as privatized enterprises, still accounting for a significant portion of overall employment, became even more stagnant throughout the observed period in terms of job flows, the new private sector was highly dynamic.

In addition to decreasing job destruction, there is also less of the excess job reallocation with fewer jobs being churned between firms that are more similar to each other, giving further support to the “restructuring slowdown” hypothesis. “Between groups” categories of excess job reallocation are decreasing compared to “within groups” categories. Less than 1/10 of excess job flows now shift between economic activities (compared to 1/5 in 1990’s), jobs are no longer moving between the counties and between big and small firms, while ownership also plays less of a role in excess job reallocation. As job flows arise between “more similar” enterprises, employment structure becomes more stable. Finally, jobs flows vary only slightly with economic cycle indicating a slow adjustment in the labor market.

Further steps in this research would be to measure the contribution of job flows to productivity growth. This would allow the quantification of economic growth lost due to the only modest extent of restructuring and the related economic costs.

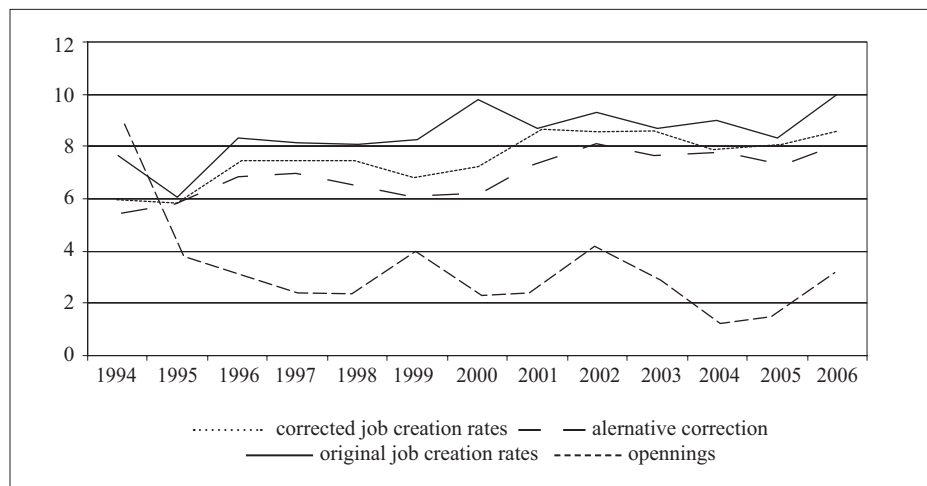


### Appendix I - Data Correction Procedure

As enterprises, on average, exhibit little employment dynamics, even a few errors in the database may significantly alter the job flow figures, although their impact on the overall employment level does not necessarily have to be large. It is therefore essential to scan the database for possible major outliers that would affect the dynamics of the job flows. As mentioned previously, observations exhibiting large employment change were “eyeballed” in order to determine whether outliers took place due to data errors rather than a change in the underlying variable. Outliers that seemed out of proportion with the rest of the series were removed or interpolated. Such a manual data cleaning procedure has some obvious deficiencies so predefined algorithms for determination of the outliers are also frequently used. Rutkowski (2003) uses one of those procedures. His procedure relies on eliminating job flows that are large in both absolute (exceeding the standard deviation of the employment change by a multiple) and relative (high rate of change) terms.

Figures 6 and 7 provide evidence on effects of the cleaning procedure used in this paper on the magnitude and dynamics of aggregate job flows. The cleaning procedure used in this article shaved between 0 and 2.5 percentage points of the job creation rate, with an average of 0.9 percentage points over the whole observed period. The impact on job destruction rate was rather similar as it ranged from 0 and 3 percentage points with an average of 1.1 percentage points. The magnitude of the correction applied to job creation peaks in 2000, while correction of the job destruction culminates a bit later, in 2001 and 2002. Corrected series remain highly correlated with the original and still exhibit the same trend, but spikes have been somewhat reduced. On the whole, the corrected procedure applied does not significantly change the dynamics of the original series, apart from smoothing it.

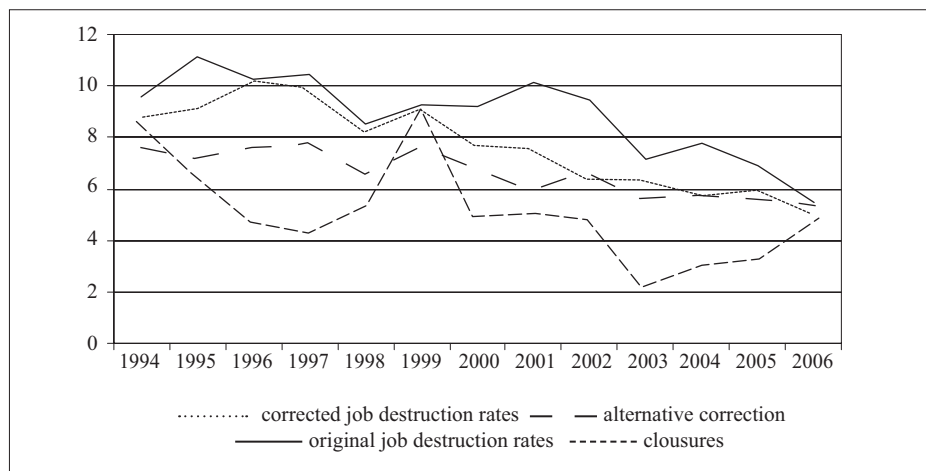
Figure 6 Effects of correcting the job creation rates, in % (1994-2006)



Source: FINA; own calculations.

The alternative data cleaning method employed by Rutkowski (2003), relying on an automated algorithm, is used in order to test for the robustness of job flows on the application of different cleaning methods. The pattern of adjustments made by the alternative procedure to the original, uncorrected figures, is similar to the adjustments made by the first procedure used, although on average it removed more of the original observations (reduction of the job flows was about double of the initial correction). This experiment broadly validates the procedure used for data cleaning.

Figure 7 Effects of correcting the job destruction rates, in % (1994-2006)



Source: FINA; own calculations.

The impact of openings and closures, which in some years even exceeded calculated job creation and job destruction rates, is potentially more detrimental to the presented results. Since it was not possible to distinguish between non-reporting enterprises and market entries/exits, this part of job flows was omitted from the analysis. However, declining trends in both openings and closures mean that even had they been included, this would not have changed the main finding of declining job turnover, although it would, on average, have increased the level of job flows quite a lot.

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